

REMARKS

Claims 1 to 20 are retained of which claims 13 to 18 and 20 have been allowed and claims 3 to 6 and 9 to 12 have been objected to but would be allowable if written in independent form.

Claims 1, 2, 7, 8 and 19 were rejected under 35 U.S.C.102(b) as being anticipated by Connell et al. (U.S. 5,940, 447) or Khoury et al. (U.S. 6,121,910). The rejection is respectfully traversed.

Claim 1 requires, among other features, the step of sampling and holding an analog signal to yield a sampled signal, the analog signal comprising information. It is not apparent from Connell et al. that the input to the sample/hold circuit is an analog signal.

Claim 1 further requires the step of filtering the sampled signal at a passive filter circuit to yield a filtered signal, the passive filter circuit comprising at least one passive element, the filtered signal characterized by a bandpass response. While Connell et al. show a band pass filter circuit, there is no statement in Connell et al. that the circuit is passive as required by claim 1 nor that the filter 104 of Khoury et al. is passive as required by claim 1. Note in Connell et al. that the bandpass filter referred to as network 214 which includes capacitors 216-236 and switches 238-266 is a part of the sampling circuit 36 and not a separate passive filter with bandpass response. In fact, nothing in Connell et al. is stated with reference to the makeup of the circuit 38 other than that it can be a bandpass filter. With reference to Khoury et al, nothing is stated as to the circuitry of filter 104 other than that it can be a bandpass filter. The claim calls for a passive filter. The use of a passive filter provides for lower power consumption and higher resolution than is available with the prior art as known at the time of filing of subject application.

As stated in the title of the invention as well as in the specification, a major purpose of the present invention is to provide a sigma delta modulator with a passive bandpass filter and, more specifically, using a passive bandpass loop filter. This type of circuitry provides a substantial improvement in power consumption and may provide improvements of other types wherein the prior art sigma delta modulation, which utilizes active elements, may be unsatisfactory.

Claim 2 depends from claim 1 and therefore defines patentably over the applied references for at least the reasons presented above with reference to claim 1.

In addition, claim 2 further limits claim 1 by requiring that the analog signal comprise an intermediate frequency signal. No such limitation is found in Connell et al. or Khoury et al. either alone or in the combination as claimed.

Claim 7 requires, among other features, those features discussed above with reference to claim 1. Accordingly the arguments presented above with reference to claim 1 apply as well to claim 7 and are incorporated by reference.

Claim 7 further requires a comparator coupled to the passive filter circuit and operable to quantize the filtered signal to yield a digital signal, the digital signal corresponding to the analog signal, the digital signal comprising the information. No quantizer appears to be present in Connell et al. and the comparator is not stated to perform a quantizing action.

The arguments further presented in connection with claim 1 apply as well to this claim other than the fact that claim 7 is written in structure rather than method format.

Claim 8 depends from claim 7 and therefore defines patentably over the applied references for at least the reasons presented above with reference to claim 7.

Claim 8 further limits claim 7 by requiring that the analog signal comprise an intermediate frequency signal. No such limitation is found in Connell et al. or Khoury et al. either alone or in the combination as claimed.

Claim 19 requires, among other features, means for sampling and holding an analog signal to yield a sampled signal, the analog signal comprising information. It is not apparent from Connell et al. that the input to the sample/hold circuit is an analog signal.

Claim 19 further requires a passive filter circuit having a passive filter coupled to the sample-hold circuit and operable to filter the sampled signal to yield a filtered signal, the passive filter circuit comprising at least one passive element, the filtered signal characterized by a bandpass response. The discussion with reference to claim 1 is apropos and incorporated by reference.

In view of the above remarks, favorable reconsideration and allowance are respectfully requested.

Respectfully submitted,



Jay M. Cantor
Attorney for Applicant(s)
Reg. No. 19,906

Texas Instruments Incorporated
P. O. Box 655474, MS 3999
Dallas, Texas 75265
(301) 424-0355 (Phone)
(972) 917-5293 (Phone)
(301) 279-0038 (Fax)